



Pilgrim Assessment Meeting

Pilgrim Nuclear Power Station Safety Performance in 2010 & U.S. Nuclear Plant Safety in light of Japan Events

**2010 Reactor Oversight Process
Nuclear Regulatory Commission – Region I**



NRC Representatives

- **Jim Clifford – Deputy Director, Division of Reactor Projects**
- **Don Jackson – Branch Chief**
- **Max Schneider – Senior Resident Inspector**
- **Katrina Dunham – Acting Resident Inspector**



Agenda

- **Introduction**
- **Discussion of Pilgrim safety performance**
- **Discussion of U.S. nuclear plant safety in light of Japan events**
- **NRC to address public questions**
- **Closing remarks**



NRC Assessment Summary

- **Entergy operated Pilgrim safely and in a manner that preserved the public health and safety and protected the environment.**
- **Licensee Response column of the Action Matrix**
- **Baseline inspections planned for 2011, however a reactive inspection is currently in progress**



Inspection Activities in 2010

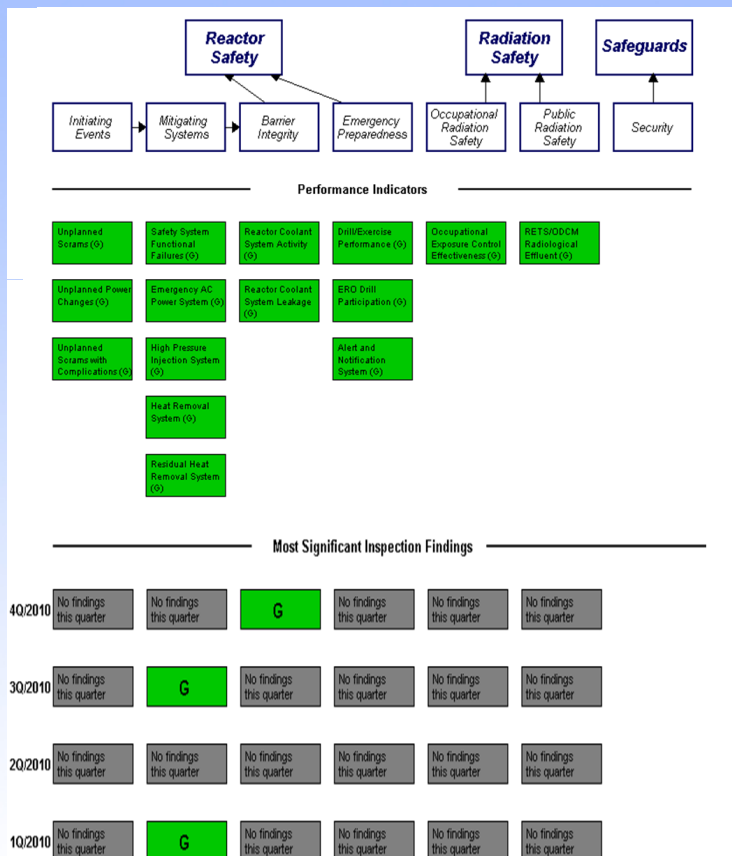
- **5041 hours of inspection and related activities**
- **2 resident inspectors on site – residents perform inspections daily and can respond to plant events at any time**
- **12 regional inspections**
- **2 major team inspections**
 - Initial Operator Licensing Exams
 - Emergency Preparedness Exercise Evaluation





Performance Indicator and Inspection Results

January 1 through December 31, 2010

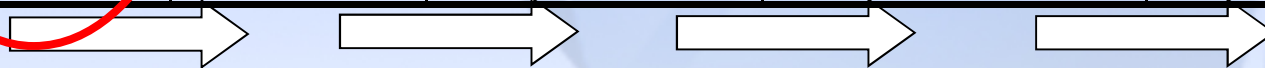


- All Green Performance Indicators
- 8 Green/Severity Level IV inspection findings
- No greater than green/severity level IV inspection findings



NRC Action Matrix

Licensee Response	Regulatory Response	Degraded Cornerstone	Multiple Repetitive Degraded Cornerstone	Unacceptable Performance
All Inputs are Green; Cornerstone Objectives Fully Met	1 or 2 White Inputs; Cornerstone Objectives Fully Met	2 White or 1 Yellow Input; Cornerstone Objectives Met w/ Moderate Degradation in Safety Performance	Multiple Yellow Inputs or 1 Red Input; Cornerstone Objectives Met w/ Significant Degradation in Safety Performance	Overall Unacceptable Performance; Plants not permitted to Operate w/in this Column; Unacceptable Margin to Safety



- **Increasing safety significance**
- **Increasing NRC inspection efforts**
- **Increasing NRC/Licensee management involvement**
- **Increasing regulatory actions**



2010 Pilgrim Assessment Summary

- Pilgrim was operated safely
- Licensee Response column of the Action Matrix
- Baseline inspections planned for 2011, however a reactive inspection is currently in progress





Pilgrim Assessment Meeting

U.S. Nuclear Plant Safety in Light of Japan Events



Fukushima: Facts We Know Today

- **9.0 Earthquake**
 - **4th largest in the world since 1900**
- **Reactors safely shutdown**
- **Site then hit by a ~40 foot Tsunami**
- **Tsunami caused a loss of all electrical power**





Fukushima: Facts We Know Today

- **Loss of all electrical power to safety systems eventually led to fuel damage**
- **Secondary containment hydrogen explosions visible at Units 1 & 3 several days later**
- **Radiological releases**





Emergency Planning Zones and Protective Action Recommendations

- **Limited and uncertain data was available**
- **Significant challenges to 3 units and at least 2 spent fuel pools on site**
- **Potential for large offsite release existed**
- **Elevated dose rates on site presented challenges to crews attempting to stabilize reactor**
- **Limited offsite data suggested serious damage to fuel**
- **Winds shifting from out to sea to land**

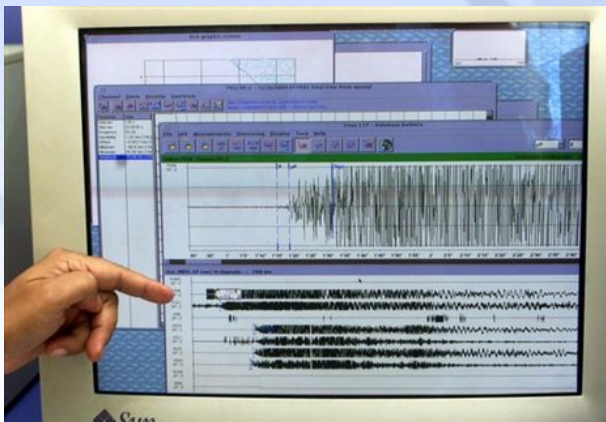


U.S. Considerations

- **No anticipated U.S. health effects from Fukushima**
- **Methodical and systematic review in progress**
- **U.S. nuclear plants remain safe**
 - NRC requires plants to be designed to withstand external events
 - NRC requires a defense-in-depth approach
 - NRC performs independent safety inspections
 - NRC assesses new safety information and requires improvements.



Designed for Site Specific Natural Events



- Earthquakes
- Tsunamis
- Hurricanes
- Floods
- Tornadoes

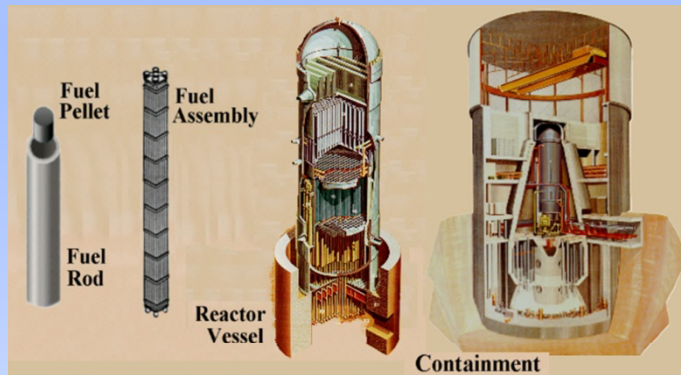


Pilgrim Seismic Considerations

- **NRC seismic limits based on ground shaking**
- **Plants designed to a ground-shaking level appropriate for location**
- **Design incorporated largest expected earthquake in region**
- **Design includes seismic safety margins**



The NRC Requires Defense-In-Depth



- Redundant and diverse safety systems
- Multiple physical barriers to contain radioactive material
- Testing and inspection of systems important to safety
- Emergency planning



NRC Independent Safety Inspections

Reactor Oversight Program

- **NRC inspectors have unfettered access to all plant activities related to nuclear safety and security**
- **At least two full-time NRC resident inspectors at each nuclear plant**
- **NRC specialists conduct additional inspections at each nuclear plant**

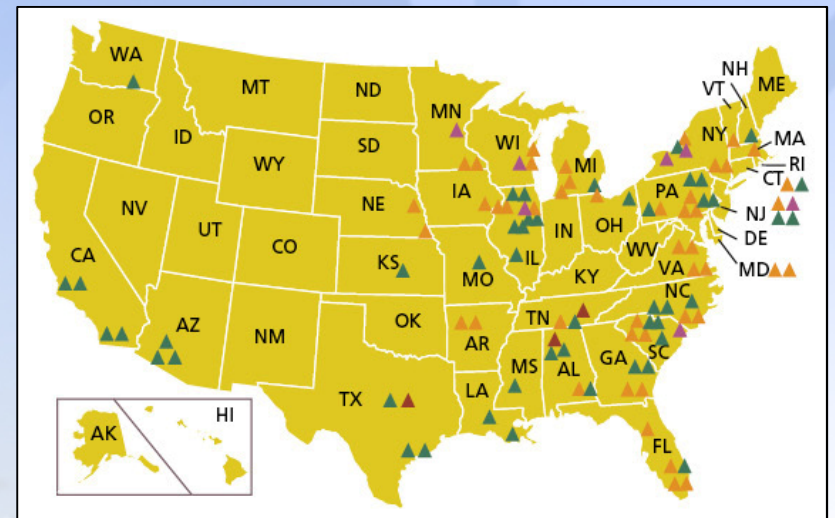




NRC Requires Safety Improvements

NRC assesses new safety information, develops lessons learned, and requires safety enhancements:

- **NRC operating experience program**
- **Rulemaking (Station Blackout)**
- **Post TMI Actions**
- **Post 9/11 Orders**
- **Generic Safety Issues**





NRC Response to Events in Japan

- **NRC conducting a methodical and systematic review**
- **Near-term actions (<90 days)**
 - **conducting additional inspections**
 - **identifying near term operational issues**
- **Longer-term actions**





NRC Near-Term Review

- **Evaluate Fukushima Daiichi Events**
- **Domestic operating reactors and spent fuel pools**
- **Staff briefed the Commission in a public meeting on May 12**
- **Next briefing scheduled for June 16**
- **Final recommendations in public meeting July 19**



NRC Long-Term Review

- **Sequence of events and the status of equipment during the event**
- **Evaluate all technical and policy issues**
- **Evaluate potential interagency issues**
- **Applicability of lessons learned to non-operating reactor and non-reactor facilities**
- **Report to the Commission within 6 months from the start of the evaluation**



NRC Actions to Date

- **Information Notice 2011-05, “Tohoku-Taiheiyou-Oki Earthquake Effects on Japanese Nuclear Power Plants”**
- **Temporary Instruction (TI) 183**
- **TI 184**
- **Bulletin 2011-01, “Mitigating Strategies”**
- **Task force established**



Summary

- **Safety of current facilities remains top priority**
- **The NRC will continue to perform a systematic and methodical review of the Fukushima event**
- **The NRC will take action based on results of the review to ensure the continued safety of U.S. commercial nuclear power plants**



Meeting Ground Rules

- 1. Please be respectful to the speaker – only one speaker at a time**
- 2. See NRC staff if you have procedural questions/concerns or still want to sign up.**
- 3. NRC staff members will be available after the meeting to talk to those interested**



Questions

